Statement of Basis

Permit to Construct No. P-2015.0007
Project ID 61735

Clearwater Paper Corp. – PPD &CPD
Lewiston, Idaho

Facility ID 069-00001

Final

February 2, 2017
Dan Pitman, P.E.
Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CI	compression ignition
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
DEQ	Department of Environmental Quality
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
gpm	gallons per minute
HAP	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
NAAQS	National Ambient Air Quality Standard
NCASI	National Council on Air and Stream Improvement
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
TAP	toxic air pollutants
U.S.C.	United States Code
VOC	volatile organic compounds
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

On September 3, 2015 Clearwater Paper Corporation obtained a permit to construct to add a polysulfide generator to the existing Kraft pulping process to increase pulp yield from the same amount of raw material (wood chips and sawdust). The project is referred to as the pulp optimization project. Clearwater is also replacing the existing batch digester systems on the chip fiberline with a continuous digester system and modifying the pulp dryer to increase productivity. Miscellaneous other changes to the chip fiberline brownstock washing, oxygen delignification and bleaching systems will be made. The project will improve mill energy efficiency, decrease water consumption, increase production capability and reduce operating costs.

Permitting History

This permit is for a PTC revision at an existing Tier I facility. The permit history is compiled in the statement of basis for the Tier I permit.

This permit replaces permit to construct P-2015.0007 issued September 3, 2015.

Application Scope

This PTC is for a minor modification at an existing major facility. The applicant has proposed to remove the requirement to operate a scrubber on the polysulfide generator because new data indicates VOC emissions will be lower than previously estimated.

Application Chronology

June 24, 2016	DEQ received an application
June 27, 2016	DEQ received an application fee.
July 25, 2016	DEQ determined that the application was incomplete.
August 18, 2016	DEQ received supplemental information from the applicant.
October 4, 2016	DEQ determined that the application was complete.
November 29, 2016	DEQ made available the draft permit and statement of basis for peer and regional office review.
December 2, 2016	DEQ made available the draft permit and statement of basis for applicant review.
December 29, 2016	DEQ received the permit processing fee.
12/19/16 – 1/18/17	DEQ provided a public comment period on the proposed action with an opportunity to request a hearing.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

This permit to action solely is for changes to the polysulfide generator.

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Sources	Control Equipment
Polysulfide Generator Manufacturer: TBD Capacity: 1,200 gpm	Control Device: A condenser is required on the polysulfide generator if the source test required to be conducted by this permit is conducted with an operational condenser

Emissions Inventories

Controlled Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

The only changes in emission from the original permit issued September 3, 2016 is that the emission factor for VOC and TAPs changed for the polysulfide generator. This emission factor change results in a reduction of VOC emissions and some toxic air pollutant emission rates increased. A summary of the criteria pollutant and total reduced sulfur (TRS) potential to emit emission increases as a result of the project are shown in Table 2. Emission calculations are included in the spreadsheet provided by Clearwater[1].

Table 2 CHANGES IN POTENTIAL EMISSION RATES

Source	PM (T/yr)	PM_{10} (T/yr)	$PM_{2.5}$ (T/yr)	SO_2 (T/yr)	CO (T/yr)	NO_x (T/yr)	VOC (T/yr)	TRS (T/yr)
Polysulfide Gen.							~~1.13~~0.78	2.294E-3
Bleached Pulp Tank							0.623	0.347
Chip Handling	0.56	0.278	0.090					
Sawdust BSW[1]							3.32	1.08
Sawdust Decker							1.16	0.313
O_2 Delignification					4.67		5.68	1.55
Chip Bleach Plant					21.1		6.5	0.237
Sawdust Bleach Plant					4.37		1.35	4.92E-2
Pulp Dryer - Process	1.11[2]	2.88	2.55				4.84	0.296
Pulp Dryer -Burners	[3]	[3]	[3]	5.28E-2	7.39	8.8	0.484	
Wastewater Plant							8.26	1.56
Plant Roads	6.28	1.47	0.256					

1) Brownstock Washer
2) Excludes condensable consistent with EPA's 10/22/12 notice for publication in the Federal Register – "Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5): Amendment to the Definition of "Regulated NSR Pollutant Concerning Condensable Particulate Matter"
3) Emissions included in process emissions

1 DEQ TRIM Electronic data base record #2016AAG1796

Major Modification Test

Clearwater Paper Corporation is an existing PSD major source. All modifications to this source must be subjected to the PSD applicability test described at 40 CFR 52.21. The procedures for determining whether the modification is subject to PSD are detailed at 40 CFR 52.21(a)(2). In summary, the facility must calculate baseline actual emissions, projected actual emissions, and emissions that could have been accommodated during the baseline period. Following are tables that summarize those determinations for all units that are part of the project. The projects overall emission increase is determined by subtracting baseline actual emissions and emission that could have been accommodated from projected actual emissions. The facility must maintain records of all calculations, then monitor emissions of future operations and report if preconstruction projections are different than what was projected as specified at 40 CFR 52.21(r)(6).

Emissions calculations are detailed in Clearwater's application (within an Excel spreadsheet). DEQ conducted a random audit of Clearwater's calculations and did not find any errors.

Clearwater, in their initial application dated January 28, 2015 asserted that the recovery boilers are not part of the project because they were not being physically or operationally modified. Subsequent to the initial application submittal DEQ determined that the recovery boilers were in fact part of the project and requested that Clearwater amend the application to include them in the major modification determination. By definition "Project" means a physical change in, or change in the method of operation of, an existing major stationary source (40 CFR 52.21(b)(52)). A change in fuel shall not be considered a change in the method of operation provided the change is not prohibited by a permit and the change could be accommodated prior to January 6, 1975. The change in the fuel characteristics (black liquor) that is combusted in the recovery furnace was not able to be accommodated prior to January 6, 1975 (40 CFR 52.21(b)(2)(*e*)), therefore the recovery furnaces are part of the project.

Because the VOC emission factor changed for the polysulfide generator Clearwater provided an updated major modification test for the pulp optimization project as if the original permit was not issued to reflect the emission reduction that occurred due to the emission change for VOC. No changes occurred to any other emission units.

Projected Actual Emissions

Projected actual emissions were calculated using the procedure set forth at 52.21(b)(41). Projected actual emissions are summarized in Table 3.

Table 3 PROJECTED ACTUAL EMISSION RATES

	Projected Actual Emissions (PAE, unadjusted) or Potential to Emit (PTE) (tons/year)										
Emissions Unit	PM	PM_{10}	$PM_{2.5}$	SO_2	CO	NO_x	VOC	TRS	H_2SO_4	Pb	GHGs*
Polysulfide Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00
Bleached Pulp HD Storage Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.35	0.00	0.00	0.00
Chip Line Digester System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Line Brownstock Washer System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Handling	19.89	9.84	3.26	0.00	0.00	0.00	3.49	0.00	0.00	0.00	0.00
No. 3 Lime Kiln	5.89	6.72	5.45	0.24	14.51	63.26	4.51	0.97	0.00	0.00	31,076.06
No. 4 Lime Kiln	2.02	5.52	5.08	0.56	1.76	52.91	4.53	0.71	0.00	0.00	31,218.61
Chip Line NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	4.05	2.37	0.00	0.00	0.00
Sawdust Line Digester System NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00
Sawdust Line Brownstock Washer System	0.00	0.00	0.00	0.00	0.00	0.00	62.11	20.11	0.00	0.00	0.00
Sawdust Line Decker System	0.00	0.00	0.00	0.00	0.00	0.00	21.62	5.86	0.00	0.00	0.00
Oxygen Delignification System	0.00	0.00	0.00	0.00	40.88	0.00	49.66	13.59	0.00	0.00	0.00
Chip Line Bleach Plant	0.00	0.00	0.00	0.00	201.93	0.00	62.24	2.27	0.00	0.00	0.00
Sawdust Line Bleach Plant	0.00	0.00	0.00	0.00	81.78	0.00	25.21	0.92	0.00	0.00	0.00
No. 4 Recovery Furnace	47.74	34.86	27.39	14.87	326.22	204.28	15.67	6.97	2.66	0.00	371,618.74
No. 5 Recovery Furnace	56.65	64.61	55.73	4.08	1,553.27	530.20	51.71	3.92	8.95	0.00	1,228,125.80
Pulp Dryer - Process	2.70	7.01	6.21	0.00	0.00	0.00	11.79	0.72	0.00	0.00	0.00
Pulp Dryer - Burners	0.00	0.00	0.00	0.13	18.04	21.47	1.18	0.00	0.00	0.00	25,825.89
No. 1 Paper Machine	5.34	12.24	10.76	0.00	0.00	0.00	20.52	1.26	0.00	0.00	0.00
No. 1 Paper Machine Coater Burners	0.11	0.46	0.46	0.04	5.07	6.03	0.33	0.00	0.00	0.00	7,257.85
No. 2 Paper Machine	5.87	13.48	11.84	0.00	0.00	0.00	22.59	1.38	0.00	0.00	0.00
No. 2 Paper Machine Coater Burners	0.01	0.04	0.04	0.00	0.46	0.55	0.03	0.00	0.00	0.00	657.52
Wastewater Collection and Treatment System	0.00	0.00	0.00	0.00	0.00	0.00	92.12	17.42	0.00	0.00	0.00
IPP Roads - Fugitives	70.01	16.43	2.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	216.23	171.21	129.07	19.92	2,243.92	878.71	454.79	78.84	11.62	0.01	1,695,780.48

In accordance with the definition of projected actual emissions set forth at 52.21(b)(41) the source shall exclude from projected actual emissions those emissions that are unrelated to the project and that could have been accommodated during the baseline period. The emissions that could have been accommodated, or excludable emissions, are summarized in Table 5. Consistent with EPA Policy[2] Clearwater determined excludable emissions by annualizing peak historical monthly productions for each existing emission unit that is part of the project.

Table 4 EXCLUDABLE EMISSION RATES

	Excludable Emissions (tons/year)										
Emissions Unit	PM	PM_{10}	$PM_{2.5}$	SO_2	CO	NO_x	VOC	TRS	H_2SO_4	Pb	GHGs*
Polysulfide Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bleached Pulp HD Storage Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chip Line Digester System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Line Brownstock Washer System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Handling	1.49	0.74	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 3 Lime Kiln	3.58	3.80	3.02	0.12	7.47	35.97	0.36	0.36	0.00	0.00	4,373.77
No. 4 Lime Kiln	0.96	2.67	2.46	0.40	0.65	28.81	0.46	0.15	0.00	0.00	3,587.98
Chip Line NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sawdust Line Digester System NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Sawdust Line Brownstock Washer System	0.00	0.00	0.00	0.00	0.00	0.00	9.30	1.78	0.00	0.00	0.00
Sawdust Line Decker System	0.00	0.00	0.00	0.00	0.00	0.00	3.24	0.52	0.00	0.00	0.00
Oxygen Delignification System	0.00	0.00	0.00	0.00	2.88	0.00	0.00	0.96	0.00	0.00	0.00
Chip Line Bleach Plant	0.00	0.00	0.00	0.00	13.89	0.00	4.58	0.16	0.00	0.00	0.00
Sawdust Line Bleach Plant	0.00	0.00	0.00	0.00	7.26	0.00	3.78	0.08	0.00	0.00	0.00
No. 4 Recovery Furnace	8.53	5.48	4.15	13.71	143.93	23.55	1.92	2.02	0.29	0.00	41,443.86
No. 5 Recovery Furnace	17.16	12.55	9.86	1.44	619.03	121.31	5.88	2.40	0.98	0.00	135,386.10
Pulp Dryer - Process	0.13	0.33	0.29	0.00	0.00	0.00	1.74	0.03	0.00	0.00	0.00
Pulp Dryer - Burners	0.00	0.00	0.00	0.01	2.09	2.49	0.20	0.00	0.00	0.00	2,997.57
No. 1 Paper Machine	0.64	1.46	1.28	0.00	0.00	0.00	3.97	0.15	0.00	0.00	0.00
No. 1 Paper Machine Coater Burners	0.04	0.14	0.14	0.01	1.55	1.85	0.11	0.00	0.00	0.00	2,219.70
No. 2 Paper Machine	0.77	1.76	1.55	0.00	0.00	0.00	3.18	0.18	0.00	0.00	0.00
No. 2 Paper Machine Coater Burners	0.00	0.02	0.02	0.00	0.18	0.22	0.01	0.00	0.00	0.00	263.15
Wastewater Collection and Treatment System	0.00	0.00	0.00	0.00	0.00	0.00	8.81	1.30	0.00	0.00	0.00
IPP Roads - Fugitives	5.22	1.22	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	38.50	30.17	23.22	15.70	798.95	214.19	47.54	10.10	1.27	0.00	190,272.13

Clearwater certified[3] that the production rates used to estimate excludable emission are rates that could have been accommodated on an annualized basis with sufficient product demand during the baseline period, and that these production rates are unrelated to the project.

Baseline Actual Emissions

Baseline Actual emissions were calculated using the procedure set forth at 52.21(b)(48). Baseline actual emissions are summarized in Table 5. The baseline period is March 2005 through February 2007 for VOC and for all other NSR regulated air pollutants January 2011 through December 2012.

2 Letter from Greg M. Worley – Chief Air Permits Section, EPA Region 4 to Georgia-Pacific Wood Product March 18, 2010 and Letter from Mark Smith - Chief Air Permitting and Compliance, EPA Region 7 to Kansas DHE, March 25, 2013.
3 Page 3-10 of Clearwater's January 28, 2015 application.

Table 5 BASELINE ACTUAL EMISSION RATES

	Baseline Actual Emissions (tons/year)										
Emissions Unit	PM	PM_{10}	$PM_{2.5}$	SO_2	CO	NO_x	VOC	TRS	H_2SO_4	Pb	GHGs*
Polysulfide Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bleached Pulp HD Storage Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chip Line Digester System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Line Brownstock Washer System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Handling	16.78	8.30	2.76	0.00	0.00	0.00	3.49	0.00	0.00	0.00	0.00
No. 3 Lime Kiln	2.31	2.92	2.43	0.12	7.04	27.29	4.15	0.61	0.00	0.00	26,702.29
No. 4 Lime Kiln	1.06	2.85	2.62	0.16	1.11	24.10	4.07	0.56	0.00	0.00	27,630.63
Chip Line NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	29.99	3.16	0.00	0.00	0.00
Sawdust Line Digester System NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Sawdust Line Brownstock Washer System	0.00	0.00	0.00	0.00	0.00	0.00	49.93	17.39	0.00	0.00	0.00
Sawdust Line Decker System	0.00	0.00	0.00	0.00	0.00	0.00	17.38	5.07	0.00	0.00	0.00
Oxygen Delignification System	0.00	0.00	0.00	0.00	31.40	0.00	67.51	10.44	0.00	0.00	0.00
Chip Line Bleach Plant	0.00	0.00	0.00	0.00	155.93	0.00	47.76	1.75	0.00	0.00	0.00
Sawdust Line Bleach Plant	0.00	0.00	0.00	0.00	70.75	0.00	20.27	0.80	0.00	0.00	0.00
No. 4 Recovery Furnace	39.21	29.38	23.24	1.16	182.29	180.73	13.75	4.95	2.37	0.00	330,174.88
No. 5 Recovery Furnace	39.49	52.06	45.87	2.64	934.24	408.90	45.84	1.52	7.97	0.00	1,092,739.70
Pulp Dryer - Process	1.51	3.93	3.48	0.00	0.00	0.00	5.43	0.41	0.00	0.00	0.00
Pulp Dryer - Burners	0.00	0.00	0.00	0.06	8.86	10.55	0.52	0.00	0.00	0.00	12,690.06
No. 1 Paper Machine	4.40	10.10	8.87	0.00	0.00	0.00	15.40	1.04	0.00	0.00	0.00
No. 1 Paper Machine Coater Burners	0.07	0.29	0.29	0.02	3.23	3.85	0.20	0.00	0.00	0.00	4,630.97
No. 2 Paper Machine	4.81	11.03	9.69	0.00	0.00	0.00	18.26	1.13	0.00	0.00	0.00
No. 2 Paper Machine Coater Burners	0.01	0.02	0.02	0.00	0.25	0.30	0.02	0.00	0.00	0.00	360.85
Wastewater Collection and Treatment System	0.00	0.00	0.00	0.00	0.00	0.00	71.66	13.92	0.00	0.00	0.00
IPP Roads - Fugitives	55.93	13.12	2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	165.59	134.01	101.56	4.17	1,395.10	655.72	415.63	62.76	10.34	0.01	1,494,929.40

Project Emissions Increase

The emission increase from the project is determined as follows:

Projected Actual Emissions – Could Have Accommodated Emissions – Baseline Actual Emissions

Table 6 summarizes emissions increases from the project.

Table 6 PROJECT EMISSION INCREASES

	Project Emissions Increase (PEI) (tons/year)										
Emissions Unit	PM	PM_{10}	$PM_{2.5}$	SO_2	CO	NO_x	VOC	TRS	H_2SO_4	Pb	GHGs*
Polysulfide Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00
Bleached Pulp HD Storage Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.35	0.00	0.00	0.00
Chip Line Digester System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Line Brownstock Washer System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Handling	1.62	0.80	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 3 Lime Kiln	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 Lime Kiln	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chip Line NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sawdust Line Digester System NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sawdust Line Brownstock Washer System	0.00	0.00	0.00	0.00	0.00	0.00	2.88	0.93	0.00	0.00	0.00
Sawdust Line Decker System	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.27	0.00	0.00	0.00
Oxygen Delignification System	0.00	0.00	0.00	0.00	6.60	0.00	0.00	2.19	0.00	0.00	0.00
Chip Line Bleach Plant	0.00	0.00	0.00	0.00	32.10	0.00	9.90	0.36	0.00	0.00	0.00
Sawdust Line Bleach Plant	0.00	0.00	0.00	0.00	3.77	0.00	1.16	0.04	0.00	0.00	0.00
No. 4 Recovery Furnace	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 5 Recovery Furnace	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pulp Dryer - Process	1.06	2.75	2.44	0.00	0.00	0.00	4.63	0.28	0.00	0.00	0.00
Pulp Dryer - Burners	0.00	0.00	0.00	0.05	7.08	8.43	0.46	0.00	0.00	0.00	10,138.25
No. 1 Paper Machine	0.30	0.69	0.60	0.00	0.00	0.00	1.15	0.07	0.00	0.00	0.00
No. 1 Paper Machine Coater Burners	0.01	0.03	0.03	0.00	0.28	0.34	0.02	0.00	0.00	0.00	407.18
No. 2 Paper Machine	0.30	0.69	0.60	0.00	0.00	0.00	1.15	0.07	0.00	0.00	0.00
No. 2 Paper Machine Coater Burners	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	33.52
Wastewater Collection and Treatment System	0.00	0.00	0.00	0.00	0.00	0.00	11.65	2.20	0.00	0.00	0.00
IPP Roads - Fugitives	8.85	2.08	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	12.14	7.03	4.29	0.05	49.87	8.79	35.41	6.78	0.00	0.00	10,578.95
PSD Significant Emission Rate*	25	15	10	40	100	40	40	10	7	0.6	75,000
Significant Increase?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

The project emission increases are below all PSD thresholds.

Toxic Air Pollutants

Thirteen toxic air pollutants from 25 sources exceeded the screening emission level. The only source that has an emission increase for this permitting action is the polysulfide generator. Acetaldehyde emissions from the polysulfide generator increased by 6.93 E-4 pounds per hour and formaldehyde emissions increased by 8.06 E-4 pounds per hour. The applicant remodeled all thirteen pollutants from 25 sources as if the original permit had not be issued and all ambient impacts were below the acceptable ambient concentration increments listed in IDAPA 58.01.01.585 & 586.

Emission calculations are included in the spreadsheet provided by Clearwater[4].

Ambient Air Quality Impact Analyses

An ambient air quality impact analyses document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix A).

REGULATORY ANALYSIS

This permitting action involves the reduction of VOC emissions and small increases acetaldehyde and formaldehyde from the polysulfide generator. Those changes and regulatory impacts of those changes are detailed in the Emission Inventories and Ambient Air Impact Analysis sections of this Statement of Basis.

The Regulatory Analysis section provided in the September 3, 2016 original Statement of Basis[5] for the pulp optimization project does not change as a result of emissions changes at the polysulfide generator and is not repeated in this Statement of Basis.

Permit Conditions Review

This section describes only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Table 1.1 was updated as follows:

Table 1.1 Regulated Sources.

Permit Section	Source	Control Equipment
Error! Reference source not found.	Continuous Chip Digester Capacity: 1,400 ADTUBP/Day	Existing Lime Kilns, Existing NCG Incinerator, existing Recovery Furnace
	Bleached High Density Pulp Tank Manufacturer: TBD Capacity: 1,000 Tons	None
3	Polysulfide Generator Manufacturer: TBD Capacity: 1,200 gpm	~~Scrubber:~~ ~~Manufacturer: TBD~~ ~~(pressure drop and scrubbing media flowrate to be determined through source testing)~~ A condenser is required on the polysulfide generator if the source test required to be conducted by this permit is conducted with an operational condenser

Clearwater is proposing to operate a condenser on the polysulfide generator for the purpose of removing excess water vapor before it is exhausted to the atmosphere. If the source test required by the permit is conducted while the condenser is operational the permit requires that the condenser be operated at all times because the condenser would serve to control VOC as well as removing excess water.

Revised Permit Condition 3.2

Originally, and consistent with the original application, this permit condition required that a scrubber be used to control emissions from the polysulfide generator.

4 DEQ TRIM Electronic data base record #2016AAG1796
5 DEQ TRIM Electronic data base record #2015AAG1360.

Now Clearwater is providing that a condenser will used on the polysulfide generator for the purpose of removing excess water vapor before it is exhausted to the atmosphere and that its purpose is not to control VOC emissions. The permit is written in such a manner to require the operation of the condenser at all times if the source test required by the permit is conducted with an operational condenser. This gives Clearwater the option to test without an operational condenser and use the resulting VOC emission factor to estimate and monitoring emissions from the polysulfide generator.

Revised Permit Condition 3.3

This original permit condition included operational requirements for the scrubber. The revised permit condition now includes operational requirements for the condenser. If the source test required by the permit is conducted with an operational condenser then the permittee shall develop an operations and maintenance manual for the condenser. The manual shall establish the maximum operation temperature of the exhaust gases from the polysulfide generator or a Department approved alternative that is indicative of proper operation of the condenser (e.g. cooling water flowrate and temperature). The operational parameters must be consistent with parameters measured during the source test and they must be monitored at least once each week.

Existing Permit Condition 3.4

This condition required monitoring scrubber operating parameters. This requirement is removed from the permit along with the requirement to operate and maintain a scrubber.

New Permit Condition 3.4

This condition requires conducting a source on the polysulfide generator to develop an emission factor in units of pounds of VOC per air dried ton of unbleached pulp. The test may be conducted while the condenser is operational or not operational. This emission factor then shall be used in emissions monitoring requirements specified in existing Permit Condition 5.3 for 40 CFR 52.21(r)(6).

With this current application Clearwater has asserted that uncontrolled VOC emissions from the polysulfide generator will be less than those they previously estimated when controlled by a scrubber. Based on this Clearwater and has requested that the source test on the polysulfide generator by removed from the permit.

Originally Clearwater used the average of two NCASI VOC emission factors from two different Mills to estimate emissions from the polysulfide generator. Clearwater has now asserted that one of the two emissions factors that were averaged to originally estimate VOC emissions does not represent the operations at Clearwater. This is because the methanol concentrations in the white liquor at the Clearwater Mill were recently measured to be less than 6 mg/L which is an order of magnitude lower than the methanol concentrations in the white liquor in one of the two Mill's used to obtain the average that was then used to originally estimate emissions. The remaining NCASI emission factor was used to estimate emissions for this permitting action. However, the methanol concentration in the white liquor for this remaining NCASI emission factor is not provided so it is not known how representative this factor is for the Clearwater Mill. Therefore, consistent with the initial permit a source test is required to establish an emission factor to be used to estimate and monitor emissions from the new polysulfide generator.

The permit continues to require a source test for the following reasons:

- Liquor flowrate to the polysulfide generator is 1,200 gallons per minute with an estimated methanol concentration of 4.1 milligrams per liter, which is equivalent to at least 10 tons of VOC per year to the system.
- The provided PSD major modification test estimates that 0.78 tons per year will be emitted from the polysulfide generator. If Clearwater's actual emissions are 4.6 tons per year a more detailed regulatory assessment will be required to assess whether Prevention of Significant Deterioration requirements have been triggered or not.
- The emission factor that is relied upon by Clearwater is not based on a system that utilizes polysulfide in production of pulp.
- The methanol concentration in the white liquor is not provided for the source that was tested that was used to develop the emission factor that was used in the application.

The permittee has a choice to measure VOC emissions as compounds or VOC emissions as carbon. The following procedure was used to make the conversion from VOC measured as carbon to an estimation of true VOC emission rate as compounds (the procedure is based on the Midwest Scaling Protocol and it was used by Clearwater to estimate emissions from the Sawdust Brownstock washer):

Top 3 Compounds	Emission Factor lb/ADTUBP	%of total compounds		mole. wt.>	C 12	H 1	O 16	cmpd. wt. divided by Carbon wt.	Scaling Factor*
Terpenes (as Pinene)	1.09E-04	5.36%		C10H16	10	16		1.13	0.06
Methonal	1.73E-03	84.82%		CH4O	1	4	1	2.67	2.26
Acetaldehyde	2.00E-04	9.82%		C2H4O	2	4	1	1.83	0.18
Total	2.04E-03							SF =	2.44

* Sample calculation for terpenes = 5.36%*1.13 = 0.06

Top 3 compounds = 96.55% of all identified compounds

VOC as compounds = (VOC as C) * (SF) ; (SF) = Scaling Factor

VOC as C = (VOC as compounds)/(SF) = 0.000864 lb/ADTUBP

VOC as C emission rate = 0.073 lb/hr

VOC as compounds using scaling factor = 0.178 lb/hr

In order to convert VOC emissions as carbon to VOC emissions as compounds, the VOC as carbon emission rate would need to be multiplied by a scaling factor of 2.44. The previous scaling factor was 1.66. The factor changed because of the change of the estimated makeup and concentrations of the compounds in off gases from the polysulfide generator.

The source testing requirements included in Permit Condition 4.3 and 5.7 were updated to specify that the source test protocols must be submitted at least 30 days prior to the test date.

PUBLIC REVIEW

Public Comment Period

A public comment period on the proposed permit was provided in accordance with IDAPA 58.01.01.209.05.c. No comments were received

Public Hearing

In addition to the public comment period, DEQ also provided an opportunity for a public hearing in accordance with IDAPA 58.01.01.209.05.c. A hearing was not requested.

EPA Review

A proposed permit was provided to EPA for their review in accordance with 209.05.c. On January 27, 2017 EPA notified DEQ that the permit was eligible to be issued.

APPENDIX A – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM DRAFT

DATE: December 2, 2016

TO: Daniel Pitman, Permit Writer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT: P-2015.0007 PROJ 61735, PTC for Clearwater Paper Corporation, Digester Project

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) as it relates to air quality impact analyses.

1.0 Summary

Clearwater Paper Corporation (Clearwater) submitted a Permit to Construct (PTC) application for the "Pulping Optimization Project. The original PTC application was received on June 28, 2016. The Idaho Department of Environmental Quality (DEQ) determined the application was incomplete on July 25, 2016. After additional data/analyses were received on August 16, 2016, and the application was determined complete on October 4, 2016.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the proposed project were submitted to DEQ to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard as required by the Idaho Administrative Procedures Act 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 203.03). This memorandum provides a summary of DEQ's review of the ambient air impact analyses submitted with the permit application.

RTP Environmental Associates, Inc. (RTP), on behalf of Clearwater, prepared the PTC application and performed the ambient air impact analyses for this project to demonstrate compliance with applicable National Ambient Air Quality Standards (NAAQS) and Toxic Air Pollutants (TAPs). The DEQ review of submitted data and analyses summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that estimated emissions increases resulting from implementation of the proposed project will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not address/evaluate compliance with other rules or analyses not pertaining to the air impact analyses. Evaluation of emissions estimates was the responsibility of the DEQ permit writer and is addressed in the main body of the DEQ Statement of Basis, and emissions calculation methods were not evaluated in this modeling review memorandum.

The submitted information and analyses: 1) showed either a) that estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a NAAQS compliance demonstration; or b) that criteria pollutant emissions increases resulting from the proposed project are below site-specific modeling applicability thresholds, developed to assure that emissions below such levels will not result in ambient air impacts exceeding Significant Impact Levels (SILs); 2) showed that TAP emissions increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments.

Table 1 presents key assumptions and results to be considered in the development of the permit.

Idaho Air Rules require air impact analyses be conducted in accordance with methods outlined in 40 CFR 51, Appendix W *Guideline on Air Quality Models* (Appendix W). Appendix W requires that air quality impacts be assessed using atmospheric dispersion models with emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department that operation of the proposed project will not cause or significantly contribute to a violation of any ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition. The DEQ permit writer should use Table 1 and other information presented in this memorandum to generate appropriate permit provisions/restrictions to assure the requirements of Appendix W are met regarding emissions representing design capacity or permit allowable rates.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
General Emissions Rates. Emissions rates used in the dispersion modeling analyses, as listed in this memorandum, must represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emissions rates greater than those used in the modeling analyses.
TAP Emissions Sources. TAP emissions sources, as constructed and operated, must be accurately represented by the analyses submitted with the PTC application.	Important parameters include release point locations, release height, stack flow rates, and stack release temperature.

2.0 Background Information

Background information on the project and the air impact analyses was provided in the Air Modeling Analysis Report submitted with the application.

2.1 Air Impact Analyses Required for All Permits to Construct

Idaho Air Rules Sections 203.02 and 203.03:

> *No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:*
>
> ***02. NAAQS.*** *The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.*
>
> ***03. Toxic Air Pollutants.*** *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Atmospheric dispersion modeling, using computerized simulations, is used to demonstrate compliance with both NAAQS and TAPs. Idaho Air Rules Section 202.02 states:

> ***02. Estimates of Ambient Concentrations.*** *All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models).*

2.2 Significant Impact Level and Cumulative NAAQS Impact Analyses

The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted in accordance with methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in Idaho Air Rules Section 006 (referred to as a "significant contribution" in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b. Table 2 lists the applicable SILs.

If modeled maximum pollutant impacts to ambient air resulting from the emissions sources associated with a new facility or modification exceed the SILs, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from facility-wide potential/allowable emissions, and emissions from any nearby co-contributing sources, and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. If project-specific impacts are below the SIL, then the project does not have a significant contribution to the specific violations.

Table 2. APPLICABLE REGULATORY LIMITS				
Pollutant	**Averaging Period**	**Significant Impact Levels[a] ($\mu g/m^3$)[b]**	**Regulatory Limit[c] ($\mu g/m^3$)**	**Modeled Design Value Used[d]**
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.3	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 $\mu g/m^3$)	75 ppb[p] (196 $\mu g/m^3$)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 $\mu g/m^3$)	100 ppb[s] (188 $\mu g/m^3$)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	75 ppb[w]	Not typically modeled

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
k. 3-year mean of annual concentration.
l. 5-year mean of annual averages at the modeled receptor.
m. Not to be exceeded more than once per year.
n. Concentration at any modeled receptor.
o. Interim SIL established by EPA policy memorandum.
p. 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
q. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
r. Not to be exceeded in any calendar year.
s. 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
t. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
u. 3-month rolling average.
v. An annual emissions rate of 40 ton/year of VOCs is considered significant for O_3.
w. Annual 4th highest daily maximum 8-hour concentration averaged over three years. The O_3 standard was revised (the notice was signed by the EPA Administrator on October 1, 2015) to 70 ppb. However, this standard will not be applicable for permitting purposes until it is incorporated by reference *sine die* into Idaho Air Rules.

2.3 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP.

3.0 Analytical Methods and Data

The submitted modeling report provides a detailed discussion of the methods and data used to demonstrate compliance with applicable standards.

3.1 Emission Source Data

Emissions increases of criteria pollutants and TAPs resulting from the proposed modification were estimated by RTP for various applicable averaging periods.

Emissions rates used in the dispersion modeling analyses, as listed in this memorandum, should be reviewed by the DEQ permit writer and compared with those in the final emissions inventory. All modeled criteria air pollutant and TAP emissions rates must be equal to or greater than the facility's potential emissions calculated in the PTC emissions inventory or proposed permit allowable emissions rates.

3.1.1 Modeling Applicability and Modeled Criteria Pollutant Emissions Rates

If project-specific emission increases for criteria pollutants would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for potential emissions of one or more pollutants exceeding the BRC threshold of 10 percent of emissions defined by Idaho Air Rules as significant, then a NAAQS compliance demonstration may not be required for those pollutants with emissions below BRC levels. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant.[1]" The interpretation policy also states that the exemption criteria of uncontrolled potential to emit (PTE) not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year. The BRC exemption cannot be used to exempt a project from a pollutant-specific NAAQS compliance demonstration in cases where a PTC is required for the action regardless of emissions quantities, such as the modification of an existing emissions or throughput limit.

A NAAQS compliance demonstration must be performed for pollutant increases that would not qualify for the BRC exemption from the requirement to demonstrate compliance with NAAQS. NAAQS compliance demonstrations were required for this proposed project since Clearwater did not show that the project qualified for the BRC NAAQS compliance demonstration exemption.

Site-specific air impact modeling analyses may not be necessary for some pollutants, even where such emissions do not qualify for the BRC exemption. DEQ has developed modeling thresholds, below which a site-specific modeling analysis is not required. DEQ generic air impact modeling analyses that were used to develop the modeling thresholds provide a conservative SIL analysis for projects with emissions below identified threshold levels. Project-specific modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*[2]. These thresholds were based on assuring an ambient impact of less than the established SIL for specific pollutants and averaging periods.

If project-specific total emissions rate increases of a pollutant are below Level I Modeling Thresholds, then project-specific air impact analyses are not necessary for permitting. Use of Level II Modeling Thresholds are conditional, requiring DEQ approval. DEQ approval is based on dispersion-affecting characteristics of the emissions sources such as stack height, stack gas exit velocity, stack gas temperature, distance from sources to ambient air, presence of elevated terrain, and potential exposure to sensitive public receptors.

DEQ determined that Level II Modeling Thresholds are appropriate for the proposed Clearwater project. Level II thresholds were based on modeling of a hypothetical source with less conservative parameters than was used in modeling to support Level I thresholds. Table 3 compares dispersion-affecting parameters associated with the proposed project to those used in modeling analyses establishing the Level II thresholds. DEQ determined Level II Modeling Applicability Thresholds were appropriate for the project based on the tall stack heights of most sources, the long distance from sources to ambient air, and the high temperature and flow rates of sources. Table 4 provides a summary of the site-specific modeling applicability analysis.

Table 3. COMPARISON OF DISPERSION PARAMETERS BETWEEN LEVEL II THRESHOLD MODELING AND THE PROPOSED PROJECT		
Parameter	**Analyses for Level II Modeling**	**Proposed Project**
Stack Height (meters)	15	>20 for all sources
Stack Temperature at Exit (°F)	260	>300 for all sources
Stack Gas Velocity at Exit (meters/second)	20	>15 for primary sources
Total Flow Volume (acfm)	33,288	
Distance to Ambient Air (meters)	100	>100 for all sources
Presence of Buildings	10m X 10m X 5m high building	Large industrial complex with tall buildings
Potential for Exposure to Sensitive Receptors	Moderate	Moderate

Table 4. SITE-SPECIFIC MODELING APPLICABILITY ANALYSIS RESULTS					
Pollutant	**Averaging Period**	**Emissions**	**Level I Modeling Thresholds**	**Level II Modeling Thresholds[a]**	**Site-Specific Modeling Required**
$PM_{2.5}$	24-hour	0.60 lb/hr	0.054	0.63	No
	Annual	2.64 ton/yr	0.35	4.1	No
PM_{10}	24-hour	0.72 lb/hr	0.22	2.6	No
NOx	1-hour	2.01 lb/hr	0.20	2.4	Yes
	Annual	8.80 ton/yr	1.2	14	Yes
CO	1-hour, 8-hour	4.4 lb/hr	15	175	No
SO_2	1-hour, 3-hour	0.01 lb/hr	0.21	2.5	No
	Annual	0.05 ton/yr	1.2	14	No
Pb	monthly	<14 lb/month	14		No

[a] Level II Modeling Thresholds were approved by DEQ for this project.

Ozone (O_3) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O_3 is formed in the atmosphere through reactions of VOCs, NOx, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses cannot be used to estimate O_3 impacts resulting from VOC and NOx emissions from an industrial facility. O_3 concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting. Addressing secondary formation of O_3 within the context of permitting a new stationary source has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

> *. . . footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."*
>
> *The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."*

DEQ determined it was not appropriate or necessary to require a quantitative source specific O_3 impact analysis because allowable emissions estimates of VOCs and NOx are below the 100 tons/year threshold.

Secondary Particulate Formation

The impact from secondary particulate formation resulting from emissions of NOx, SO_2, and/or VOCs was assumed by DEQ to be negligible based on the magnitude of emissions and the short distance from emissions sources to locations where maximum PM_{10} and $PM_{2.5}$ impacts are anticipated.

3.1.2 Toxic Air Pollutant Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 210 are only applicable to new or modified sources constructed after July 1, 1995.

Many of the TAP emissions sources at the Clearwater facility are regulated under 40 CFR 60, 61, or 63. These sources are exempt from TAP rules as per Idaho Air Rules Section 210 and were excluded from the TAP modeling applicability calculation, as indicated in the modeling report submitted with the application.

Table 5 provides a summary of TAP emissions increases for the project for those TAPs that had an increase exceeding the ELs of Idaho Air Rules Section 585 or 586. Table 6 lists source-specific emissions of TAPs used in the impact analyses.

Table 5. TAP EMISSIONS INCREASES THAT TRIGGER MODELING

Toxic Air Pollutant	Emissions Increase (lb/hr)[a]	Screening Emissions Level (lb/hr)
1,1,2-Trichloroethane[b]	1.30E-3	5.68E-3
1,3,-Butadiene[b]	3.75E-4	2.40E-5
Acetaldehyde[b]	6.87E-1	3.00E-3
Arsenic[b]	4.42E-6	1.50E-6
Benzene[b]	7.50E-3	8.00E-4
Cadmium[b]	2.21E-5	3.70E-6
Chloroform[b]	3.50E-2	2.80E-4
Formaldehyde[b]	3.04E-2	5.10E-4
Methylene Chloride[b]	1.55E-2	1.60E-3
Nickel[b]	4.22E-5	2.70E-5
Methyl Mercaptan[c]	1.47E-1	3.30E-2
Propionaldehyde[c]	2.35E-1	6.70E-2
Sulfuric Acid (aerosol)[c]	2.35E-1	6.70E-2

a. Pounds per hour.
b. Carcinogenic TAP. ELs are a maximum annual average expressed as pounds/hour. The emissions increase is the annual emissions divided by 8,760 hours/year.
c. Non-carcinogenic TAP. ELs are a daily maximum expressed as pounds/hour. The emissions increase is the daily emissions divided by 24 hours/day.

Table 6. MODELED EMISSIONS RATES FOR TOXIC AIR POLLUTANTS

Source	Source Description	Emissions Rates (pounds/hour)

ID		1,1,2-Trichloro-ethane[a]	1,3 Butadiene[a]	Acetalde-hyde[a]	H2SO4[b]	Arsenic[a]	Benzene[a]
P1176	Polysulfide Reactor (reactor vent)			1.68E-2			
P1178	Bleached Pulp HD Tank	6.20E-5		8.65E-4			1.75E-6
PU14	No. 3 Lime Kiln (NCG control)				2.35E-01		
PU15	No. 4 Lime Kiln (NCG control)				2.35E-01		
P009	Sawdust Line BS Washer Vent North						
P010	Sawdust Line BS Washer Vent Middle						
P011	Sawdust Line BS Washer Vent South						
P49	No. 2 Filtrate Tank						
P50	No. 3 Filtrate Tank						
P1171	Soap Tank						
P002	Foam Tank						
P109	Sawdust Line Decker						
P766	Oxygen Delignification Reactor Vent						
P791	MEOH Scrubber						
P078	Post Oxygen Hi Density Tower						
P080	No. 2 Post Oxygen Wash Press						
P1173	No. 2 Post Oxygen Level Tank						
P079	No. 2 Post Oxygen Filtrate Tank						
P1174	No. 2 Post Oxygen Dilution Conveyor						
P1175	No. 3 Post Oxygen Level Tank						
P048	Chip Line Bleach Plant Scrubber		2.80E-04	9.29E-03			3.25E-04
P107	Sawdust Line Bleach Plant Scrubber		5.80E-05	1.93E-03			6.74E-05
P621	Pulp Dryer Vacuum Pump Exhaust			2.77E-03			3.36E-04
P513	Pulp Dryer Gas-fired Dryer, East			1.25E-02		2.21E-06	1.53E-03
P514	Pulp Dryer Gas-fired Dryer, West			1.25E-02		2.21E-06	1.53E-03

a. Annual average emissions rate in pounds per hour.
b. 24-hour average emissions rate in pounds per hour.

Table 6 Continued. MODELED EMISSIONS RATES FOR TOXIC AIR POLLUTANTS

Source ID	Source Description	Emissions Rates (pounds/hour)						
		Cadmium[a]	Choroform[a]	Formalde-hyde[a]	Methyl Mercaptan[b]	Methylene Chloride[a]	Nickel[a]	Propion-aldehyde[b]
P1176	Polysulfide Reactor (reactor vent)			4.90E-03	6.10E-05			
P1178	Bleached Pulp HD Tank		4.83E-03		1.61E-03			2.30E-04
PU14	No. 3 Lime Kiln (NCG control)				1.81E-03			
PU15	No. 4 Lime Kiln (NCG control)				1.81E-03			
P009	Sawdust Line BS Washer Vent North				7.22E-03			
P010	Sawdust Line BS Washer Vent Middle				3.76E-03			
P011	Sawdust Line BS Washer Vent South				3.76E-04			
P49	No. 2 Filtrate Tank				1.12E-03			
P50	No. 3 Filtrate Tank				5.60E-04			
P1171	Soap Tank				8.00E-04			
P002	Foam Tank				3.04E-03			
P109	Sawdust Line Decker				1.25E-03			
P766	Oxygen Delignification Reactor Vent				4.25E-03			
P791	MEOH Scrubber				2.44E-04			
P078	Post Oxygen Hi Density Tower				3.82E-03			
P080	No. 2 Post Oxygen Wash Press				8.50E-04			
P1173	No. 2 Post Oxygen Level Tank				2.97E-03			
P079	No. 2 Post Oxygen Filtrate Tank				1.27E-03			
P1174	No. 2 Post Oxygen Dilution Conveyor				4.25E-04			
P1175	No. 3 Post Oxygen Level Tank				4.25E-04			
P048	Chip Line Bleach Plant Scrubber			3.52E-03	3.62E-02			2.15E-03
P107	Sawdust Line Bleach Plant Scrubber			7.30E-04	7.51E-03			4.46E-04

Table 6 Continued. MODELED EMISSIONS RATES FOR TOXIC AIR POLLUTANTS								
Source ID	Source Description	Emissions Rates (pounds/hour)						
		Cadmium[a]	Choroform[a]	Formalde-hyde[a]	Methyl Mercaptan[b]	Methylene Chloride[a]	Nickel[a]	Propion-aldehyde[b]
P621	Pulp Dryer Vacuum Pump Exhaust		1.38E-04	1.57E-03	6.77E-03	1.24E-03		5.09E-03
P513	Pulp Dryer Gas-fired Dryer, East	1.11E-05	6.22E-04	7.83E-03	3.05E-02	5.57E-03	2.11E-05	2.29E-02
P514	Pulp Dryer Gas-fired Dryer, West	1.11E-05	6.22E-04	7.83E-03	3.05E-02	5.57E-03	2.11E-05	2.29E-02

a. Annual average emissions rate in pounds per hour.
b. 24-hour average emissions rate in pounds per hour.

3.3.2 DEQ Review

The DEQ modeling group reviewed the proposed modeling methods and data during the protocol review. DEQ determined the following from review of the protocol and the Air Modeling Analysis Report submitted with the application:

- The appropriate atmospheric dispersion model was used for the proposed project.
- The Clearwater facility was properly represented in the model, with regard to geographical location, terrain, structures, emission point locations, and areas of potential exposure.
- Appropriate meteorological data were used with the dispersion model.
- Appropriate averaging periods were selected for model output, corresponding to the form of applicable standards.
- The modeling report indicates that all TAPs with project-wide emissions increases above the ELs of Idaho Air Rules Section 585 and 586 were modeled to evaluate compliance with applicable AACs and AACCs.
- Through review of the modeling protocol and submitted Air Modeling Analysis Report, it appears that the TAPs air impact analyses were performed using recommended data and methods prescribed in the *Idaho Air Quality Modeling Guideline*[2].

DEQ determined the review of the air impact analyses, as described above, was adequate to provide a high level of assurance that the proposed project will not result in increases in ambient air TAP levels that exceeded the specific AACs or AACCs. This conclusion is based on the types of methods and data used in the analyses, the modeled results in comparison to applicable AACs/AACCs,

4.0 NAAQS and TAPs Air Impact Modeling Results

4.1 Results for NAAQS Analyses

A site-specific NAAQS analysis was not necessary for the proposed project because emissions increases were blow DEQ pollutant-specific modeling thresholds, as described in Section 3.1.1 of this memorandum.

4.2 Results for TAPs Impact Analyses

Table 7 lists the maximum modeled impacts for specific TAPs. All modeled impacts are well below applicable AACs and AACCs.

Table 7. TAP AIR IMPACT ANALYSIS RESULTS			
TAP	**Maximum Modeled Impact ($\mu g/m^3$)[a]**	**AAC or AACC ($\mu g/m^3$)**	**Percent of AAC/ AACC**
1,1,2-Trichloroethane[b]	4.00E-5	6.2E-2	0.06
1,3,-Butadiene[b]	6.00E-5	3.6E-3	1.7
Acetaldehyde[b]	2.86E-2	4.5E-1	6
Arsenic[b]	<1E-5	2.3E-4	<4
Benzene[b]	2.98E-3	1.2E-1	2
Cadmium[b]	1.00E-5	5.6E-4	1.8
Chloroform[b]	3.39E-3	4.3E-2	8
Formaldehyde[b]	1.58E-2	7.7E-2	21
Methylene Chloride[b]	1.08E-2	2.4E-1	5
Nickel[b]	2.00E-5	4.2E-3	0.5
Methyl Mercaptan[c]	8.60E-1	25.0	3
Propionaldehyde[c]	1.66E-1	21.5	0.8
Sulfuric Acid (aerosol)[c]	5.23E-1	50.0	1.0

a. Micrograms per cubic meter.
b. Carinogenic TAP. Modeled impact and AACC represent a 5-year period average concentration.
c. Non-carcinogenic TAP. Modeled impact and AAC represent a 24-hour averaged concentration.

5.0 Conclusions

The information submitted with the PTC application demonstrated to DEQ's satisfaction that applicable emissions resulting from the proposed modifications at the Clearwater facility will not cause or significantly contribute to a violation of any ambient air quality standard.

References

1. *Policy on NAAQS Compliance Demonstration Requirements.* Idaho Department of Environmental Quality Policy Memorandum. July 11, 2014.

2. *State of Idaho Guideline for Performing Air Quality Impact Analyses.* Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf.

APPENDIX B – PROCESSING FEE

PTC Prcessing Fee Calculation Worksheet

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company: Clearwater Paper Corp.-PPD &CPD
Address: P.O. Box 1126
City: Lewiston
State: Idaho
Zip Code: 83501
Facility Contact: Clayton Steele
Title: Environmental Manager
AIRS No.: 069-00001

N Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

Y Did this permit require engineering analysis? Y/N

N Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM10	0.0	0	0.0
VOC	0.0	0.35	-0.4
TAPS/HAPS	4.2E-04	0.00	0.0
Total:	0.0	0.35	**-0.35**
Fee Due	**$ 1,000.00**		

Comments: